

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-8 (Canceled).

Claim 9 (New): A porous structure comprising a porous carbon-fibre matrix, said porous matrix being bounded on least one of its faces by an impermeable layer comprising a carbon element selected from the group consisting of carbon fibres, carbon nanotubes, glassy carbon and mixtures thereof, said impermeable layer being linked to the porous matrix via carbon-carbon bonds.

Claim 10 (New): The porous structure according to Claim 1, in which said porous matrix is bounded on a first face by an impermeable layer, as defined in Claim 1, and on a second face opposite the first face by a porous layer comprising a carbon element selected from the group consisting of carbon fibres, carbon nanotubes and mixtures thereof, said porous layer being linked via carbon-carbon bonds to the porous matrix.

Claim 11 (New): The porous structure according to Claim 1, in which said porous matrix is bounded on a first face by an impermeable layer and on a second face opposite the first face by another impermeable layer, said impermeable layers being as defined in Claim 1.

Claim 12 (New): The porous structure according to Claim 1, which further comprises a porous layer comprising a carbon element selected from the group consisting of carbon fibres, carbon nanotubes and mixtures thereof, on said impermeable layer or layers and/or on one face of the porous matrix.

Claim 13 (New): The porous structure according to Claim 2, wherein the porous structure further comprises an active layer on said porous layer or layers.

Claim 14 (New): A bipolar plate or electrode/bipolar plate assembly comprising a porous structure as defined in Claim 1.

Claim 15 (New): A process for manufacturing a porous structure as defined in Claim 1, comprising:

- 1) growing carbon elements, selected from the group consisting of carbon fibres, carbon nanotubes and mixtures thereof, on one face or on two opposed faces of a carbon-fibre matrix followed by densification of said carbon elements; and/or
- 2) forming glassy carbon on one face or on two opposed faces of a carbon-fibre matrix when the carbon element is glassy carbon.

Claim 16 (New): A process for manufacturing a porous structure according to Claim 7, comprising producing said carbon-fibre matrix by the needle-punching of carbon fibres.